PB-215 052

INTERNATIONAL JOINT COMMISSION, PROGRESS REPORT NUMBER 11

Advisory Boards to the International Joint Commission on Control of Pollution of Boundary Waters

April 1957

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PROGRESS REPORT

To The

INTERNATIONAL JOINT COMMISSION

APRIL 1957

- By The -

ADVISORY BOARDS TO THE INTERNATIONAL
JOINT COMMISSION ON CONTROL
OF POLLUTION OF BOUNDARY
WATERS

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WATERS

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ADVISORY BOARDS TO THE

INTERNATIONAL JOINT COMMISSION

ON CONTROL OF POLLUTION OF

BOUNDARY WATERS

Lakes Superior-Huron-Erie Board, and
Lakes Erie-Ontario Board

For the United States

L. F. Warrick,	Chairman, Sanitary Engineer Director, Department of Health, Education, and Welfare, Public Health Service, Washington, D. C.
Hayse H. Black,	Secretary, Sanitary Engineer Director, Department of Health, Education, and Welfare, Public Health Service, Cincinnati, Ohio

For Canada

J. Ross Menzies,	Chairman, Chief, Public Health Engineering Division, Department of National Health and Welfare, Ottawa, Ontario
W. R. Edmonds,	Assistant Chief, Public Health Engineering Division, Department of National Health and Welfare, Ottawa, Ontario

For Ontario

A. E. Berry,	Director, Division of Sanitary Engineering, Ontario Department of Health, Toronto, Ontario
A. V. DeLaporte,	Chemical Engineer, In Charge of Experimental Station, Ontario Department of Health, Toronto

Lakes Superior-Huron-Erie Board

For Michigan

W. F. Shephard,	Director, Division of Engineering, Michigan Department of Health, Lansing, Michigan
L. F. Oeming,	Chief Engineer, Michigan Water Resources Commission, Lansing, Michigan

Lakes Erie-Ontario Board

For New York

Earl Devendorf,	Director, Bureau of Environmental Sanitation, New York State Department of Health, Albany, N.Y.
A. F. Dappert,	Executive Secretary, New York State Water Pollution Control Board, Albany, N. Y.

LETTER OF TRANSMITTAL

TO THE

INTERNATIONAL JOINT COMMISSION

UNITED STATES AND CANADA

Herewith is the Eleventh Progress Report to the International Joint Commission prepared by the Advisory Boards on Control of Pollution of Boundary Waters under reference in the Great Lakes Region. The "high-lights" of this report are given in the "Summary of Activities." Attention is invited to the minutes of the Advisory Board meetings which also contain material of interest to the Commission.

Emphasis is being placed on control and monitoring of industrial waste systems with the objective of preventing "spills" and minimizing irregularities in operation. The programs established for investigating possible future fish kills and for warning water plant operators should keep those handling pollutional materials on the alert. Significant progress has been made by industry in providing waste treatment facilities, and treatment for all domestic sewage should soon be a reality.

Respectfully submitted

United States

L. F. Warrick,
Chairman

Canada

J. Ross Menzies,
Chairman

REPORT OF ADVISORY BOARDS TO THE
INTERNATIONAL JOINT COMMISSION ON CONTROL OF
POLLUTION OF BOUNDARY WATERS

OCTOBER 1956 - APRIL 1957

SUMMARY OF ACTIVITIES

The Advisory Boards on Control of Pollution of Boundary Waters met in Buffalo, New York on February 20 and 21, 1957. All members of the Boards were present. These deliberations are recorded in the minutes for these meetings. A summary of significant developments and progress indicated during the past six months follows:

1. The Ontario Water Resources Commission is in process of constructing a 1.5 million dollar research laboratory on Highway 401 thirteen miles from downtown Toronto. This project and the active program of the Ontario Commission promise to accelerate both municipal sewage treatment and industrial waste control affecting these Boundary Waters.

2. A Bill was introduced in the New York Legislature February 19, 1957 empowering the City of Buffalo to construct a waterworks system to supply raw water from Lake Erie for the purpose of relieving Buffalo River from accumulation of pollutional wastes and authorizing the city to lease said system.

3. Results of bioassay studies were reviewed. This work has been concentrated on Buffalo River and industrial effluents contributing toxic materials to this Boundary Water tributary. Use of bioassay techniques to trace toxic substances inside an industrial plant was demonstrated.

4. A program has been developed for joint investigation of possible future fish kills along the Niagara Frontier by the New York Department of Conservation and the I. J. C. Buffalo Field Unit.

5. A check for phenol was made January 10, 1957 in the east end of Lake Erie along a range from the Wanakah Water Plant on the United States Shore to Crystal Beach Bay on the Canadian Shore. Phenol concentrations ranging from 3 ppb to 9 ppb strongly suggest sources of phenol west of the Buffalo-Lackawanna area.

6. A system for alerting water plant operators and other officials in event of waste spills or other emergencies along the Niagara Frontier was established in November 1956. This warning system includes officials and their respective telephone numbers for public agencies in both New York State and the Province of Ontario.

7. The Committee on Methods for the Bacteriological Analysis of Boundary Waters met at the Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio, on January 8, 1957. This Committee recommended the use of membrane filter procedures in the examination of Boundary Waters. This recommendation was accepted by the Advisory Boards.

8. Carbon filter studies at municipal water intakes are being continued

in the Lake Huron-Lake Erie Section. This work is being conducted at Detroit, Marine City, and Port Huron, Michigan. Parallel studies were initiated in December 1956 at Wallaceburg, Point Edward, and Port Elgin, Ontario.

9. Field studies by the United States Section have included industrial effluent surveys, bacteriological examination of the Boundary Waters, and checks of tributaries.

10. Significant progress has been made by industry through installation of new waste treatment systems and by establishing positive control over existing treatment works. The status of industrial pollution problems is given in the report.

11. The Michigan Water Resources Commission reports continuing pressure on Michigan municipalities to provide treatment of sewage discharged to the Boundary Waters and indicates the status of the remaining problems. In New York, the North Tonawanda Sewage Treatment Works has recently been placed in operation.

12. Developments in the water supply problems of Southeastern Michigan (Detroit Metropolitan Area) are reported.

13. The Advisory Boards recommend that a hearing be held by the International Joint Commission, at as early a date as possible, with shipping operators and other interested parties, to explore the action taken or proposed to control vessel pollution in the Boundary Waters under reference.

LAKE ERIE-LAKE ONTARIO SECTION

The program in this area during the past six months has included industrial waste surveys, additional bioassay studies of industrial effluents discharged to the Buffalo and Niagara Rivers, the study of phenols in Lake Erie, the Buffalo River and the East Branch of Niagara River, and investigation of an oil discharge to the Niagara River.

Industrial Waste Surveys

A report was prepared on the study of wastes discharged to the Buffalo River by the Buffalo Refinery of the Socony Mobil Oil Company conducted in July 1956. Comparison of data obtained in this study with that of a company conducted study in 1952 shows a substantial reduction in the quantity of oil in the effluent. The recent survey indicates a current average oil discharge of 630 pounds per day while in 1952 approximately 3300 pounds was being discharged daily to the Buffalo River. The quantity of phenols discharged is approximately the same as in 1952. Significant quantities of other polluting materials were not found in the refinery wastes. The local refinery has received tentative budgetary approval to reconstruct the main oil separator in conformance with A.P.I. design standards and for facilities needed to revise certain operating procedures so as to appreciably reduce the quantity of phenols in the wastes.

A report has been prepared on the effluent studies conducted in cooperation with the Frontier Oil Refining Company, Tonawanda, New York, during the period of July 22 to August 3, 1956. Comparison with a similar study conducted in 1954 shows a reduction in oil discharged to the Niagara River from 726 pounds per day in 1954 to 452 pounds per day in 1956. The survey indicated that 9.3 pounds of phenol is being discharged daily directly to the Niagara River and 48.4 pounds is being discharged to a small creek tributary to the river.

A study was made of the effluent of the Semet-Solvay By-Product Coke Plant during November 1956. In addition to the usual coke plant operations this plant operates an oil gas generator which produces gas serving as a raw material for a petrochemical industry. Concentrations of oil in the oil gas generator plant wastes were considerably less than the 15 ppm maximum limit tentatively established for effluents entering Boundary Waters. Practically no cyanide was found in the coke plant wastes. During the study an average of approximately 1400 pounds of phenol was being discharged daily to the Niagara River. Semet-Solvay is planning to install a dephenolization unit and is currently studying the Podbielniak dephenolization process.

Phenol Studies

The continuing sampling program of the Niagara River indicates that there is presently less phenol in most sections of the river than existed in 1948. Significant quantities of phenols are currently entering the Niagara River from Two Mile Creek which was apparently not occurring during the 1948-1949 studies. A study to locate the source of these phenols is under way. Data obtained to date appears to indicate that there may be several sources.

Data collected in 1956-1957 on phenols in the Buffalo River show a significant reduction since 1948. The current data reflects conditions prior to the recent installation of the dephenolization system at the Donner-Hanna Coke Corporation. Sampling of the Buffalo River is being continued to evaluate the further reduction accomplished by this dephenolization unit. Studies to determine the efficiency of the dephenolization unit are also planned.

Samples for the determination of phenols werecollected on January 10, 1957 from Lake Erie along a range across the lake from Wanaka on the U.S. Shore to Crystal Beach on the Canadian Shore. The phenol concentrations ranged from 3 to 9 ppb with the lower values in samples collected nearest each shore. The temperature of the water was 33° F. Prevailing winds on the four days prior to the sampling were from directions that would tend to prevent transfer of phenols discharged in the Buffalo-Lackawanna vicinity to the portion of the lake sampled. It appears probable that the phenols found are from some source other than the Buffalo-Lackawanna vicinity and may be coming from sources located a considerable distance southwest or west of Buffalo. Samples are being collected during cold water periods at more westerly locations in the lake in an effort to more definitely determine the possible sources or source.

Investigation of Oil Discharge

An oil discharge to the Niagara River which appears to occur occasionally

has been traced to an outfall sewer of the City of North Tonawanda. A joint effort to trace the source of oil discharge to the city sewer has been planned with city officials.

Fish Kill Investigation Procedures

A procedure has been established for coordinating fish kill investigative activities of the I.J.C. Field Unit with those of the New York Conservation Department in Boundary Waters. The New York Conservation Department has the primary responsibility for investigating fish kills and initiating necessary enforcement action in New York State. Investigations conducted by the I.J.C. Field Unit are intended to help provide essential information on fish kills in Boundary Waters for the International Joint Commission and to assist the New York Conservation Department in determining the cause.

Status of Buffalo River Pollution Abatement Project - Water System

As the result of negotiations between the City of Buffalo and the "Buffalo River Industries," arrangements have been made whereby the city will construct the water plant and lease it to a non-profit organization created by the industries. This organization will operate the plant, collect the payments from the industries and pay the city.

In order to carry this arrangement out, State legislation was needed and the City of Buffalo prepared such a bill. This bill has been introduced into the current session of the legislature and it is anticipated that it will pass without opposition. The State Department of Health has endorsed this bill and requested its passage.

STATUS OF INDUSTRIAL WASTE PROBLEMS - NEW YORK

(1) Allegheny Ludlum Steel

Installed treatment plant for sanitary wastes and it is operating under direction of Erie County Health Department. The company is to arrange a method of disposal of spent pickling acid containing hydrofluoric acid in a manner satisfactory to the Erie County Health Department.

(2) Carbide and Carbon Chemicals Company

The company routinely samples the wastes discharged. The record of these samples was checked and found to be satisfactory.

(3) Carborundum Company

The company requested a special meeting with representatives of the Water Pollution Control Board to discuss their problem as the increased cost of power has changed their plans for this plant. This was held and the company agreed to collect data on wastes. They later asked for help on this and it was referred to the I. J. C. Survey Unit.

(4) Dunlop Tire and Rubber

Have made necessary installations for disinfecting sanitary sewage.

(5) E. I. du Pont de Nemours - Niagara Falls

Just submitted Annual Report on activities. The company is doing an excellent job.

(6) E. I. du Pont de Nemours - Tonawanda

Treatment plant for sanitary wastes about completed. The company is submitting annual reports regarding the effects of wastes on river.

(7) Durez Plastics - (Now a division of Hooker Electrochemical)

The company is submitting Annual Reports and carrying out a program to pick up small streams of phenol.

(8) Electro Metallurgical

Employed a consulting engineer to study their problem but no report on this study has been received.

(9) Fort Niagara Corrugated Box Division

Conditions have been corrected.

(10) Hanna Furnace

Plans for the blast furnace flue dust collection system have been submitted for review and have been approved.

(11) International Cooperage

Undertook a cooperative study with State Health Department District Engineer.

(12) International Paper Company - Niagara Falls

The records of waste discharged were checked. Plans are under way for reduction of solids due to paper production.

(13) International Paper Company - North Tonawanda

The company submitted an Annual Report showing some reduction in losses.

(14) Iroquois Gas

Satisfactory

(15) Kimberly Clark

The company is making a study to determine what wastes can be diverted from the sanitary sewer system to relieve the sewage treatment plant.

(16) Marvel Meat

Certain corrections have been made and an engineering report on the changes has been promised.

(17) Niagara Alkali - (Now part of Hooker Electrochemical)

Reports of wastes discharged to the river reviewed and found to be satisfactory.

(18) Oldbury Electro Chemical - (Now a part of Hooker)

Reports of wastes discharged to the river reviewed and found to be satisfactory.

(19) Stauffer Chemical Company

A study of operations by the I. J. C. Survey Unit has been requested.

(20) Van Raalte

Now discharged to municipal sewers and sewage treatment plant.

(21) Wickwire Spencer Steel Company

The company has corrected the disposal of spent pickle acid and waste oil. Preliminary plans for a method of disposal of blast furnace flue dust solids have been submitted to the State Department of Health.

(22) Rudolph Wurlitzer

Report on plant effluent and stream samples received.

(23) Spaulding Fibre

The phenol problem appears to be corrected. The company is working on solutions to the other problems.

(24) Donner Hanna Coke Corporation

Just completed a phenol recovery plant of the Koppers type.

(25) General Chemical Division

The company is submitting monthly reports to the Erie County Health Department. These were reviewed by a member of the Water Pollution Control Board and found to be satisfactory.

(26) Republic Steel Corporation

The company has had plans approved for a method of disposal of spent pickle acid. It has also hired a waste disposal engineer and has plans for a

crew of chemists and a laboratory to assist in studying the problems here. A report on the plans of this unit have been filed with the Water Pollution Control Board.

Companies at which special studies by the I. J. C. Survey Unit were made:

(1) Bethlehem Steel Corporation
(2) Frontier Oil Refining Company
(3) Semet-Solvay Division, Allied Chemical and Dye Corporation
(4) National Aniline Division, Allied Chemical and Dye Corporation
(5) Socony Mobil Oil Company

Companies from which Annual Reports are due:

(1) Chevrolet - Tonawanda
(2) Olin - Mathieson
(3) Remington - Rand
(4) Semet - Solvay Petrochemical Division

Companies with which conferences are due:

(1) Carborundum Metals
(2) East Pembroke Canning Corporation
(3) Hooker Electrochemical Company
(4) Tonawanda Boxboards
(5) Tonawanda Iron

STATUS OF INDUSTRIAL WASTE PROBLEMS - ONTARIO

There are no significant changes in the industrial waste picture for the Ontario industries in this area.

STATUS OF MUNICIPAL SEWAGE PROBLEMS - NEW YORK

(1) The North Tonawanda Sewage Treatment Plant is in operation.

(2) The Village of Lewiston has applied for a Federal grant for sewage treatment works.

(3) Stella Niagara expects to have its chlorinator installed by spring.

(4) Study has been under way by the Niagara Frontier State Parks Commission to eliminate sewage discharges to the river.

STATUS OF MUNICIPAL SEWAGE PROBLEMS - ONTARIO

The Chippawa Sewage Treatment Works is under construction and this plant

will soon be in operation. Progress has been made toward sewage treatment by the three municipalities in the Welland area and this program for sewage treatment should soon crystallize. Sewage treatment for Niagara Falls, Ontario will probably be handled by the Ontario Water Resources Commission.

WARNING SYSTEM FOR HEALTH OFFICIALS AND WATER PLANT OPERATORS IN EVENT OF EMERGENCIES

As the result of certain unfortunate occurrences in the Detroit area, the International Joint Commission requested the Advisory Boards on Control of Pollution of Boundary Waters to set up a warning system. This is a little complicated in the Lake Erie-Lake Ontario Section as there are two levels of the State Health Department, three local health units and seven major water supplies involved as well as the industries and the I.J.C. Field Survey Unit.

A system has been set up with the Regional Office of the State Health Department as the hub. This office will receive all notices of waste spills or other emergencies either from the industry involved if it occurs in New York State or from the Province of Ontario if a Canadian industry is involved. In turn, this office will alert the local health units that have charge of water supplies that may be involved due to the location of the discharge, the I.J.C. Field Survey Unit, Province of Ontario and the Water Pollution Control Board.

The local health departments will be responsible for notifying the individual water supplies concerned.

This system was outlined in mimeographed sheets and distributed to all agencies concerned. In the event that the office was closed, a list of home addresses and telephone numbers of key individuals connected with each office was also attached.

A list of all potential sources of phenol was prepared and the industries concerned were notified of the system being set up and requested to notify the Regional Office immediately that a waste spill or other emergency had occurred. Here again, in case the office was closed, a list of key individuals connected either with that office or the I.J.C. Field Survey Unit was attached. The industries notified signified acceptance of the responsibility of alerting the health officials of spills or other emergency measures taken.

BIOASSAY STUDIES

Additional work was performed by the Robert A. Taft Sanitary Engineering Center, Aquatic Biology Unit, in cooperation with the I.J.C. Field Unit and certain industries located in the Buffalo-Tonawanda-Niagara Falls, New York Area. During the calendar year 1956 bioassay studies were conducted during five different periods, each of two weeks duration. Emphasis was placed on Buffalo River and the effluents from those industries known to be discharging toxic materials into this tributary. This program was extended to include toxicity studies of by-product coke wastes in Lackawanna and Tonawanda. In Niagara Falls, a limited amount of work was done in cooperation with a large

manufacturer of chlorinated hydrocarbons and at the Niagara Falls Sewage Treatment Works which receives significant quantities of industrial wastes. This program has provided valuable information on the toxicity of wastes which should go far in protecting aquatic life in these Boundary Waters. Reports on these various sub-projects are currently being prepared.

SEWAGE TREATMENT PROGRAM - NIAGARA FALLS, N.Y.

Mr. Edward J. Smith, Superintendent, Niagara Falls, New York, Sewage Treatment Works, appeared before the Advisory Board, February 21, 1957, and briefed the Board on current plans of Niagara Falls in the matter of sewage treatment. The substance of Mr. Smith's presentation is contained in a letter directed to the Advisory Board and which has been reproduced in this report as Appendix A.

ERIE COUNTY SEWERAGE STUDIES

Mr. Charles C. Spencer, Director of Sanitation, Erie County Health Department, reported on his study of future sewerage needs for Erie County. Erie County has recently created a County Sewer Agency consisting of seven men. Mr. Spencer's study will forecast sewerage needs of Erie County for the year 1970 and for the year 2000. It is hoped that this long-range planning program will solve some of the current problems of fringe area sanitation.

LAKE SUPERIOR-HURON-ERIE SECTION

The field work in th's area during the past six months has been conconcentrated on bacteriological examination of the Boundary Waters, carbon filter studies, and limited study of tributary streams.

Bacteriological Studies

Bacteriological anslyses were made on routine samples taken from the St.Clair and Detroit Rivers. Coliform counts were obtained by both the membrane filter procedure and the most probable number evaluation. These data were reviewed by the Committee on Methods for the Bacteriological Analysis of Boundary Waters at a meeting held at the Robert A. Taft Sanitary Engineering Center January 8, 1957. Action taken by this Committee has been reproduced as Appendix B.

Carbon Filter Studies

Reference is made to the report entitled "A Study of Organic Contaminants in Boundary Waters Using Carbon Filter Techniques, Lake Huron-Lake Erie, 1953-1955," prepared for the International Joint Commission. This report, prepared by F. M. Middleton and A. V. DeLaporte, indicates the value of data obtained from carbon filter studies. This work is being continued in the Lake Huron-Lake Erie Section, both in Michigan and Ontario.

Carbon filters have been installed on the water intakes at Detroit, Marine City, and Port Huron, Michigan, as a part of the I.J.C. Program. A carbon filter has been installed at the Wyandotte Water Plant as part of the Public Health Service Basic Data Program. Several carbon samples are presently in the process of being extracted. The Detroit staff will normally carry the procedure only through the extraction stage to determine total organic matter in the raw water. In the event the need for more complete analyses is indicated, these separations will be made at the Sanitary Engineering Center.

The carbon filter studies on the Canadian side are being expanded. Filters have been installed at Port Elgin, Ontario, Point Edward and Wallaceburg. The Port Elgin results should give us a knowledge of the organic matter normally present in the waters of Lake Huron. The Point Edward samples will show any increment in the organic content from pollution in the passage of the water down the lake, while the Wallaceburg determination will show the increment due to the population and industries in the Sarnia area.

It is planned to explore different methods in the determination of the chemical components in the various fractions separated by chromo tography from the carbon extracts as shown in the Middleton-DeLaporte report. The identification of the chemical components will enable the Board to reappraise the value of this study. This study will be carried on in the Sarnia Laboratory pending completion in 1958 of the very modern laboratory being constructed for the Ontario Water Resources Commission on Highway 401, northwest of Toronto.

Fish Kill - Tailrace of Detroit-Edison Conners Plant

Routine fish destruction in the canal which receives condenser water from the Detroit-Edison Conner Creek Power Plant was reported by letter dated Oct.26, 1956. Investigation of this complaint revealed excess chlorination to be the cause. The Detroit-Edison Company has taken steps to correct this condition as reported in their letter dated December 27, 1956 to the Michigan Water Resources Commission (Appendix C).

Water Supply Problems of Southeastern Michigan

Wayne County has continued an intensified study of river water quality in the vicinity of Fighting Island, where it is proposed to locate a water works intake. Plans are being prepared for the intake tunnel and purification facilities. The latter will have a normal capacity of 150 mgd. Some of the larger transmission mains needed in the area are under construction.

The survey of water supply, sewerage, and drainage being made for the Six-County Boards of Supervisors' Committee by the National Sanitation Foundation is progressing and the work on the water supply phase should be completed early in 1957. This phase will cover present sources of supply, needs for the future, and presumably at least general recommendations as to the way to meet these requirements.

The Detroit Board of Water Commissioners is proceeding with planning and construction covering the first series of projects recommended by the General

Manager. These include pressuring the raw water tunnels from Water Works Park to Springwells station and to the George Fenkell station (Northeast station); increasing capacity of Springwells station; construction of the first sections (about 3 miles) of 54 inch transmission line northerly from the Fenkell station into Oakland - Macomb area, and negotiating for further extensions of this system.

Several legislative bills are under consideration that have as an objective the expediting of organizing, financing, and administering metropolitan concepts of this public service.

STATUS OF INDUSTRIAL WASTE PROBLEMS - MICHIGAN

LAKE ST. CLAIR - DETROIT RIVER

Semet-Solvay Division, Allied Chemical & Dye Corporation, Detroit, Michigan.

Award of construction contracts for phenol recovery plant scheduled for February 1957.

Great Lakes Steel Corporation

New oil separator for No. 2 strip mill in full operation. Additional separator under construction for general mill wastes. Completion expected late spring 1957.

LAKE ERIE

Detroit Edison Company - Enrico Fermi Power Plant

Order of Determination adopted December 6, 1956 setting restrictions on disposal of wastes from steam electric portion of plant.

Power Reactor Development Company, Enrico Fermi Power Plant

Statement for new use of Lake Erie for disposal of wastes from nuclear reactor portion of plant pending before Water Resources Commission. Restrictions to be applied to waste discharges being formulated.

STATUS OF INDUSTRIAL WASTE PROBLEMS - ONTARIO

All the industries on the Canadian side in the St.Clair River, Lake St. Clair and Detroit River areas have completed the remedial works recommended. The results of the examination of the effluents by the industries indicate that most of the effluents comply with the I.J.C. Objectives. The Canadian Section field staff plan to examine the effluents to determine the efficiency of these works.

Sarnia Laboratory

The Ontario Water Resources Commission is converting the fish hatchery

at Sarnia to a laboratory. The cost is estimated at $12,500.00. This will give the Canadian field parties a permanent control laboratory in this critical area. The laboratory is designed for bioassay of the industrial effluents in the area as well as the standard chemical and physical determinations which are made on the river samples and on the industrial wastes.

Upon the completion of this laboratory the Canadian Section field staff plans to examine the industrial effluents after the manner of the original survey. The results of such are examined and should serve as a criteria of the progress in pollution abatement.

After completion of work in the Sarnia area it is planned to examine the conditions in the Detroit River, to finish the study commenced in 1956 and abandoned on account of the steel strike on the U. S. side.

STATUS OF MUNICIPAL SEWAGE PROBLEMS - MICHIGAN

ST. MARYS RIVER

City of Sault Ste. Marie, Michigan

Legal proceedings initiated by State Attorney General in Chippawa County Circuit Court on August 31, 1956 for enforcement of Water Resources Commission abatement order, and injunction against city's pollution. State's testimony presented December 12-13, 1956, defendant city's testimony scheduled for May 8, 1957.

ST. CLAIR RIVER

City of St. Clair, Michigan

Construction plans and specifications for city's sewage collection and treatment facilities completed and approved by State Health Department February 11, 1956. Project certified February 15, 1957 by W.R.C. for construction grant of $157,159.50 under Public Law 660, 84th Congress. City committed to award construction contracts on or before June 30, 1957.

Marine City

Sewage treatment one-half constructed.

LAKE ST. CLAIR - DETROIT RIVER

City of Warren, Michigan

Contracts awarded December 31, 1956 for sewage treatment plant to abate pollution of Red Run in amount of $6,179,257.00.

City of Dearborn, Michigan

City negotiating with Detroit for treatment of sewage discharges.

LAKE ST. CLAIR - DETROIT RIVER (Cont'd)
Grosse Ile, Michigan

Petition filed January 30, 1957 by Water Resources Commission with Wayne County Drain Commissioner for elimination of sewage from Grosse Ile tile drains no. 1, 2, 3, 4, 8 and 9 based on findings of State Health Commissioner of hazard to public health.

STATUS OF MUNICIPAL SEWAGE PROBLEMS - ONTARIO

Sarnia attempted to obtain Government assistance for the construction of a sewage treatment works. Sarnia failed to obtain Government aid and has now decided to finance sewage treatment locally. Sarnia is under order to develop plans for a sewerage system by July 1, 1957 and to proceed immediately thereafter with works construction.

Sault Ste. Marie, Ontario, and Windsor, both delayed in applying to the Ontario Water Resources Commission pending decision on Sarnia's application for Federal aid.

It appears now that these two communities will proceed with applications to the Ontario Water Resources Commission in accordance with the Act of 1956.

POLLUTION BY OIL FROM SHIPS

The Canadian Department of Transport is working toward control of oily wastes discharged by vessels plying inland waters. The first report of this department suggested allowing 100 ppm oil in oily waters discharged from vessels. This limit is in significant variance with the I.J.C. Objectives for Boundary Waters Quality Control.

At the Joint Meeting February 20, 1957, the Advisory Boards unanimously passed the following Resolution:

"The Advisory Boards recommend that a hearing be held by the International Joint Commission, at as early a date as possible, with shipping operators and other interested parties, to explore the action taken or proposed to control vessel pollution in the Boundary Waters under reference."

APPENDIX A

February 21, 1957

To the Members of the Advisory Board to the
International Joint Commission

Gentlemen:

At the January 1956 meeting of the Advisory Board to the International Joint Commission, held in Toronto, Ontario, Canada, the City of Niagara Falls reported at that time that they were contemplating retaining the services of a Consulting firm, specializing in sewage and industrial wastes treatment.

I am happy to report that the City of Niagara Falls has retained the services of Russbaumer, Clarke and Velzy, Consulting Engineers, to prepare a preliminary report which will cover the following:

Evaluate the present treating capacity of the present plant.

Suggest, and prepare, preliminary plans for alternate programs, with estimates of cost, for increasing the effectiveness of sewage treatment in the present structures.

Preliminary plan and estimate of cost to extend and deepen the effluent discharge conduit to the Niagara River.

Study the present sewage flow data, for tributary flows to the plant, and those by-passed to try to arrive at some program which would produce more effective treatment.

Suggest a pilot plant study program such as the conversion of one contact tank to a sedimentation tank, and laboratory results which should be secured to indicate the effectiveness of the proposed treatment, as compared with present results.

Make such laboratory tests as may be required for the purposes of the report or final plans, to supplement the work normally done by the sewage treatment plant staff, assist in setting up the pilot plant described above, and generally supervise the operation of the same, and upon completion of the test period, evaluate the results.

Prepare final plans and specifications, ready for taking bids for such construction program as may be approved for construction by the City Manager, from the recommended program in the preliminary report.

We are in the process of filing two project applications for grants of Federal funds to assist in constructing the proposed work at the Sewage Treatment Plant.

Project No. 1 is for the remodeling and extension of the outfall sewer in

APPENDIX A (Cont'd)

the Niagara River from the Sewage Treatment Plant. It is estimated that this project will cost approximately $300,000.00.

It is felt that regardless of the degree of treatment the Sewage Treatment Plant might obtain, and due to the industrial wastes discharge into the sanitary system, and the possibilities of the river level being lowered due to the construction of a power plant on the American side, the remodeling of the outfall will provide better diffusion of the effluent into the Niagara River.

Project No. 1 would be designed so that the Plant outfall would be submerged approximately 35 feet below the river level and about 50 feet off shore.

Project No. 2 is for the remodeling and improvement of treatment at the Sewage Treatment Plant. It is estimated that the cost of this work would be approximately $900,000.00.

The City of Niagara Falls has also hired the services of a Consulting Engineer to review and study the present sewers in the City of Niagara Falls and all sewage systems in the proposed annexation program that they are studying at present.

During 1957 this consulting firm will make recommendations regarding sewers and treatment work that will be needed.

Yours very truly,

EJS/rs

Edward J. Smith
Superintendent

APPENDIX B

January 9, 1957.

MEETING

COMMITTEE ON METHODS FOR THE BACTERIOLOGICAL ANALYSIS OF BOUNDARY WATERS

Members

Wallace Sanderson, Assistant Director Division of Laboratories, New York State Department of Health

Robert Tait, Senior Engineer, P.H.E. Division, Department of National Health and Welfare, Canada

Laurier Belleville, P.H.E. Division, Department of National Health and Welfare, Canada

J. G. Duncan, Chemical Engineer, Sanitary Engineering Division, Ontario Department of Health

A. V. DeLaporte, Ontario Water Resources Commission, Toronto

O. E. McGuire, Michigan State Department of Health, Lansing, Michigan

Dr. Paul Kabler, Chief of Microbiology, Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio

H. F. Clark, Bacteriologist, Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio

Action

After consideration of information available, it is believed that results of water examinations by membrane filter (M.F.) procedures and by Standard Methods (M.P.N.) are of comparable sanitary significance. This Committee, therefore, recommends the use of M.F. procedures in the examination of Boundary Waters.

It is recognized that there may be instances where indeterminate findings may result from interferences due to algae, turbidity, suspended solids, etc. In such cases, coliform estimates by Standard Methods (M.P.N.) Confirmed Test are acceptable.

The M.F. procedures appended are recommended for use.

APPENDIX C

THE DETROIT EDISON COMPANY
2000 Second Avenue
Detroit 26, Michigan

December 27, 1956

Mr. Loring F. Oeming, Chief Engineer
Water Resources Commission
300 E. Michigan Avenue
Lansing 13, Michigan

Dear Mr. Oeming:

Recently, Mr. O. D. Whiddon, Technical Engineer of Power Plants, received a letter from you relative to a series of fish killings that have occured in the tailrace from our Conners Creek Power Plant. We have studied the situation with the following results.

Our investigation indicates agreement with the letter that fish were being stunned or killed at the Conners Creek Power Plant, primarily minnows and a few larger fish. Also, we have reason to believe that this condition was caused by the chlorination practices at that plant. We immediately took steps to determine means of preventing this condition.

Two procedures were tried. First the chlorination period was reduced from one hour to one-half hour; and secondly, the chlorination dosage at the beginning of each chlorination period was gradually increased to the desired quantity to allow the fish to move out of the overflow canal into the river before being stunned or killed, rather than starting the chlorination period with a full dosage rate. Both methods of handling the problem appeared to be satisfactory, however practical considerations indicated the desirability of using the shorter chlorination period.

Chlorine residuals were measured, and it was found that by using the one-hal hour chlorination period, sufficiently high residuals could be obtained in the pumps and heat exchange units to keep them clean without exceeding a safe residual in the overflow canal. Also, the one-half hour chlorination period agrees with the practice at the other power plants in the system which has caused no trouble to our knowledge.

A meeting was held with Messrs. Frost and Calhoun of the Water Resources Commission on December 18, 1956, and the progress on this problem reported to them at that time. Messrs. Frost and Calhoun visited the Conners Creek Plant on the following day and observed the canals and river during the chlorination period and apparently were satisfied with the results of the present method of chlorination.

We feel that the shorter chlorination period accomplishes two things. First, it allows us to chlorinate the plant equipment with a sufficiently high chlorine residual to keep the equipment clean without building up to a harmful residual in the tailrace water; and secondly, the exposure time which must be endured by the fish has been reduced by one-half. It is somewhat surprising that the ill effects on the fish caused by the previous method of chlorination

APPENDIX C (Cont'd)

has not been noted before, as the previous method of chlorination had been used since 1951 at this plant. However, as pointed out in the letter from the Water Resources Commission, other factors tend to influence, to some extent the toxic effect of chlorine on fish, and the quality of the water at the Conners Creek Plant is highly variable.

Nevertheless, we feel that the problem is well under control and we invite further inspection at Conners Creek as desired by representatives of the Water Resources Commission.

Very truly yours,

Henry J. Sullivan
Assistant to the President

HJS;ls

cc: Mr. O.D.Widdon